

USB WIRE CRACKMETER



USER'S MANUAL AND MAINTENANCE

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NOTE OF SYSTEM UTILIZATION



To ensure a safe and efficient functioning, please read the following instructions carefully before use.

Any unauthorized modification is considered a total responsibility of the user.

In addition to the standards listed above, the user must comply with the existing legislation on safety and health of employees in the workplace.

Check the product for damages caused by transport.

Verify that your package includes all standard accessories and any accessories required. In case, contact the manufacturer.

The use of the equipment shall be done only after the proper connection and following the configuration needed; so the user must carefully perform all the operations described herein.

SISGEO will not be liable for inconveniences, damages, accidents, etc.. due to lack of knowledge (or non-application) of the requirements contained in this manual.

The use, any possible maintenance or repair of the equipment is allowed only to skilled and authorized operators. These operators must be physically, professionally and intellectually capable.

For information or orders of spare parts always specify the data reported on the identification plate showing the serial number inside each device.

When replacing parts, use only ORIGINAL SPARE PARTS. The use of unoriginal SISGEO spare parts may cause irregular functioning and dangers for people and objects

The product is not fit for installation in small and/or unventilated environments, with a high humidity range or in presence of inflammable or explosive liquids. All the instruments and the equipment furnished are not suitable for installation in potential dangerous area or when the use of explosion-proof components is foreseen.

The electrical connections must be executed by a qualified installer, observing the effective regulations.

The manufacturer reserves the right to make changes, in case of any manufacturing or commercial need, without notice.

It will attempt to ensure that user manuals are updated in order to reflect functional product revisions.

MANUAL PURPOSE

This manual has been designed by the Manufacturer to provide the necessary information regarding the device to those who are authorized to carry out safely its installation, maintenance, dismantling and disposal.

Other than adopting good technical construction methods, the information should be read carefully and strictly applied. Inobservance of this information could cause risks for the health and safety of people and economical damage. This manual reflects the state of skill of the instrument at the time of input on the market: however the manufacturer reserves the right to make changes, add or improve the manual without giving any reason to hold the present manual inadequate.

ENVIROMENTAL CONDITIONS

Temperature setting: min. -10°C, max. + 60°C.

It is forbidden to use the instrument other than its specific use and in potentially explosive conditions or where anti-explosive elements are used.

CONFORMITY DECLARATION AND EC MARKING

The instrument answers to the following Communitarian Directives:

2004/108/EC Electromagnetic compatibility, with reference to general Rules EN61000-6-2 (immunity in industrial environment) and EN50081-1 (emission in residential environment).

MAINTENANCE

The instrument does not needs a particular maintenance except cleaning to do only with a soft cloth dampen with ethylic alcohol or water. Do not use hydrocarbon solvents (petrol, diluents, etc.): the using of these products could affect the proper functioning of the instrument.

WASTE DISPOSAL



According to the European standard 2002/96/CE, the disused instrument must be disposed in a correct way. The recyclable materials are recovered, in order to avoid the environmental damage.

For more information please contact your waste disposal service or the instrument retailer.

SIMBOLOGY

Here are the symbols used in this manual to alert the reader:



Attention! This operation must be executed only by specialized personnel.



Pay particular attention to the following information.

IDENTIFICATION PLATE

Each USB Wire Crackmeter (oD314FV8000) has one identification plate.

This reports the product registration *Serial Number*.



It is important to communicate this information when requesting information concerning the product.

USB WIRE CRACKMETER OVERVIEW



DESCRIPTION

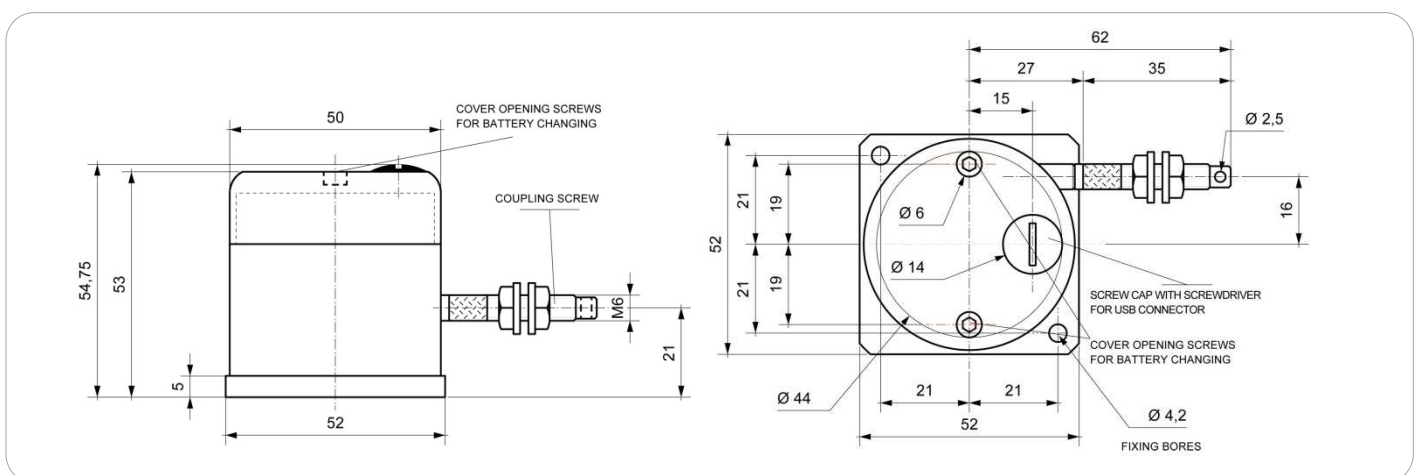
Crackmeter with data logger fully independent for the storage of the displacement and temperature. They are made of a precision rotating potentiometer operated by the means of a winding or unwinding of stainless steel wire.

Special features of the crackmeter are the simplicity of setting and the limited eye-catching.

They are suitable for monitoring of crack evolution in buildings, geomechanics, and joints. Stroke 80 mm.

Power supply is internal with battery and it may be connected to a PC with a mini USB cable for setting and for data saving.

DIMENSION



INSTALLATION AND SETTING

The crackmeter has to be mounted on a flat surface and has to be fixed across the fracture to be monitored. Place, if possible, the case of the instrument in a higher position as to the wire ends. The two fixing bores allow an easy and quick installation of the crackmeter.

The stainless steel wire has to be fixed through the coupling screw M6 or the hollow positioned at the end of the wire.



Avoid bending or distortion of wire. Do not exceed the maximum stroke of the wire.

Do not release the wire of the transducer too rapidly.



In case the USB Wire Crackmeter is exposed to external agents (snow, ice, animals, branch or gravel fall) it is necessary to cover it with proper protection.

POWER SUPPLY

The crackmeter is power supplied internally with a 3Volts battery type CR2032.

Also with low battery level it is possible to export the saved data through a PC connection. In any case data are not lost.



To replace the battery is necessary screw off the two screws on the top cover, lift it to access the battery holder. After replacing the battery screw the cap.

BATTERY CHANGE



Before change of battery is necessary connect the device to a PC, otherwise the device will lost date and time.

USB CONNECTION TO A PC

To access the USB connector, it is necessary to screw off the cap by the means of a large cut screwdriver.

The initial setting, the configuration and saving operation of data can be simply managed through simple Microsoft Windows software. The PC can be connected to the crackmeter via mini-USB connector placed inside the instrument near the battery.



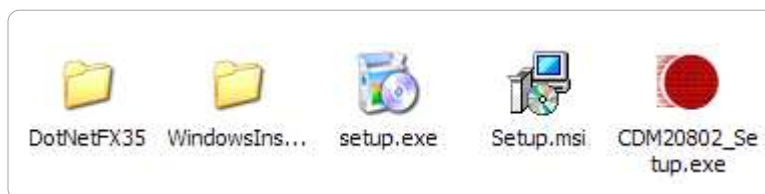
Screw the cap after data transfer.

"WRCDATA SOFTWARE MANAGEMENT" INSTALLATION GUIDE

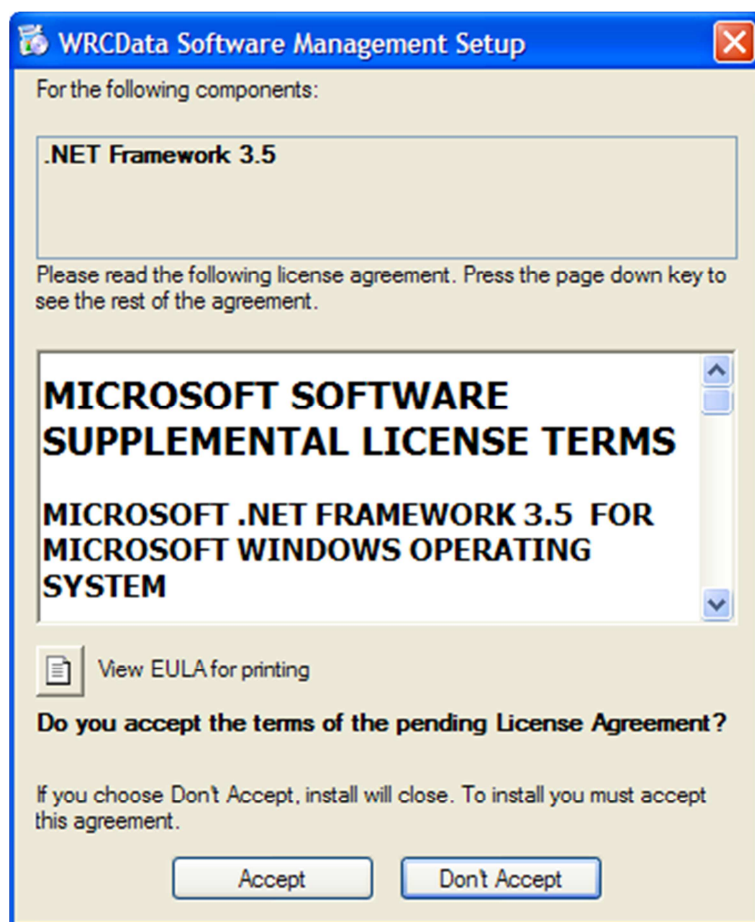


WARNING: all the following steps requires Administrator privileges

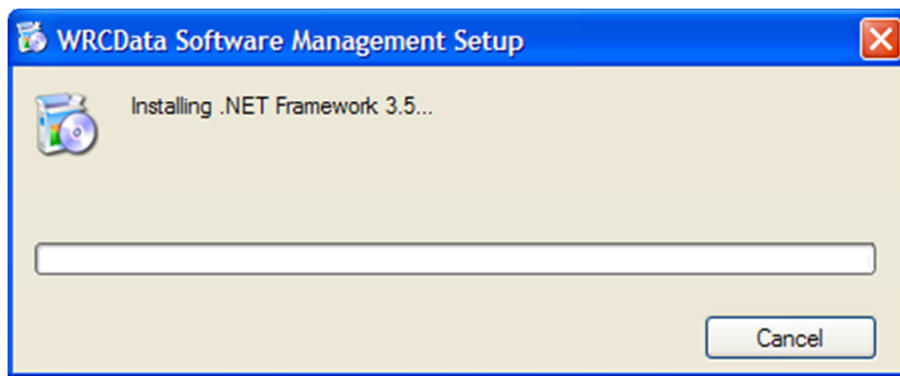
Before installing the WRCDData Software Management please install the device driver double-clicking on "CDM20802_Setup.exe", a background shell window will appear and close automatically after the drivers installation.



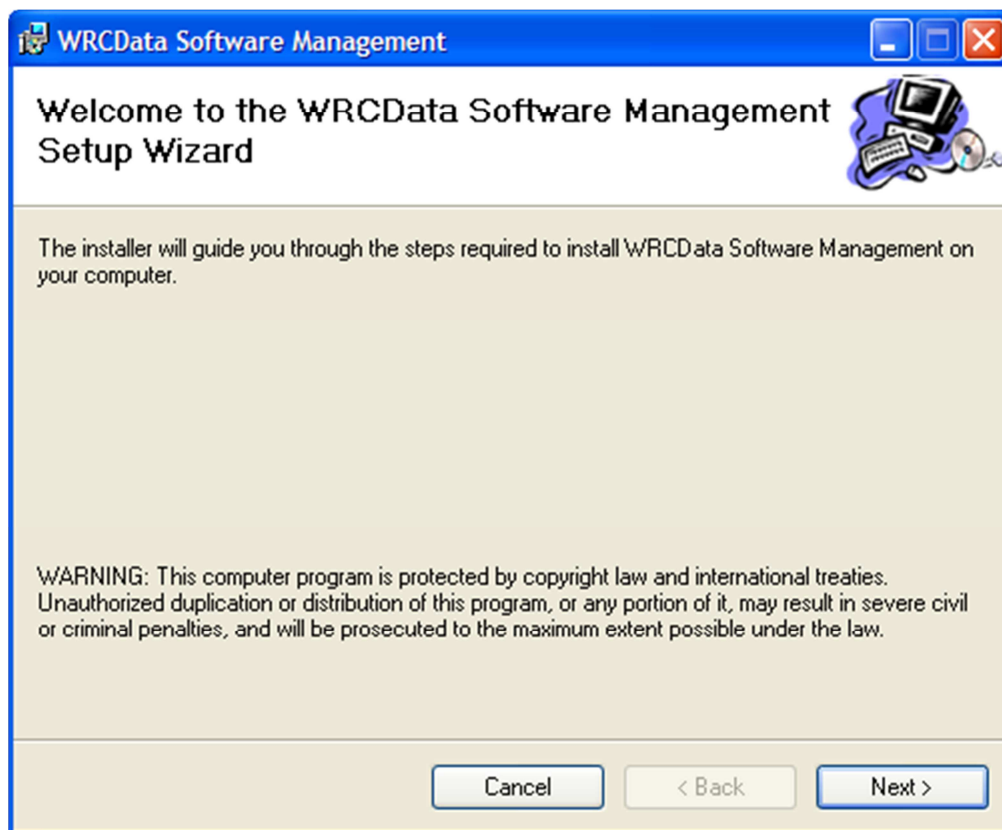
To install the WRCDData Software Management double-click on the "setup.exe" icon then if the .NET Framework 3.5 is present on your PC you could skip to **page 10**, otherwise the following form will appear: click on the "Accept" button to continue the installation



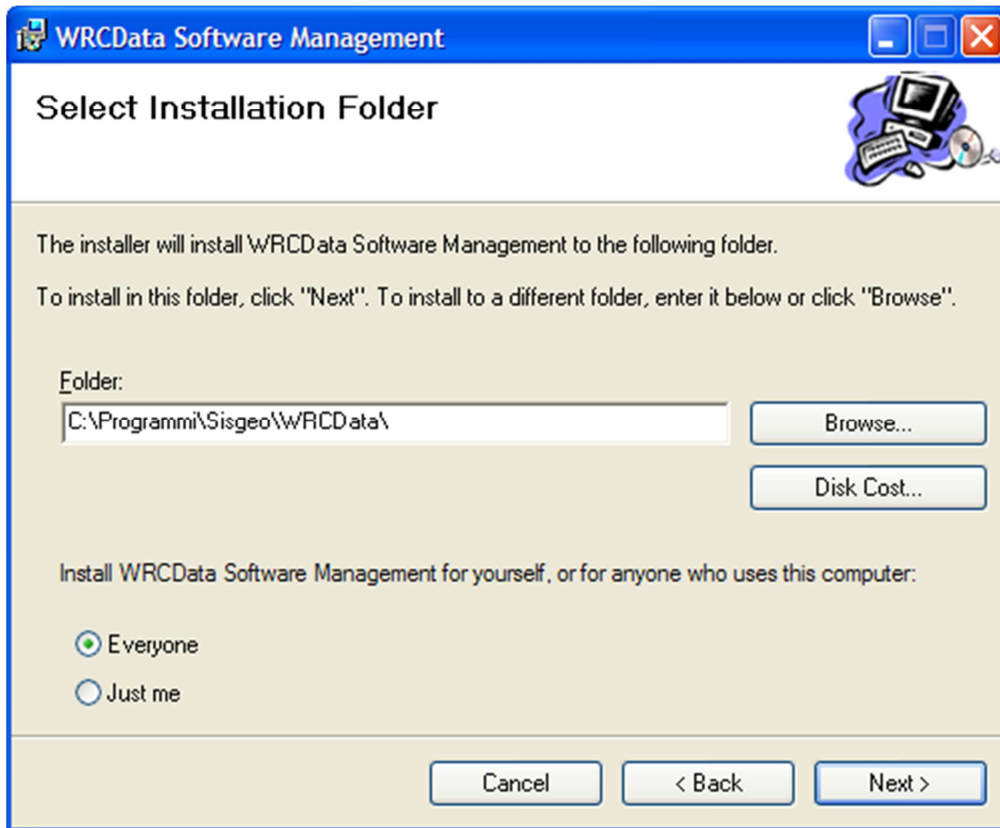
then the .NET 3.5 will be installed on your PC with the appearing of this window:



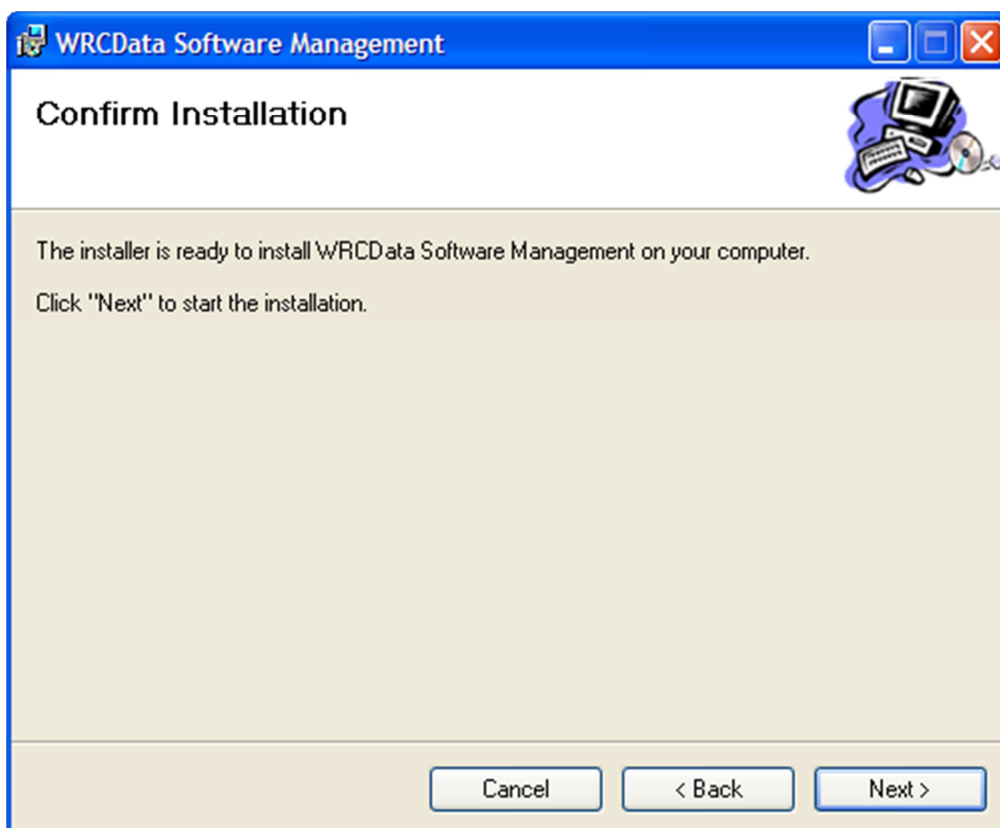
The installation of the WRCDData Software Management start with this window:



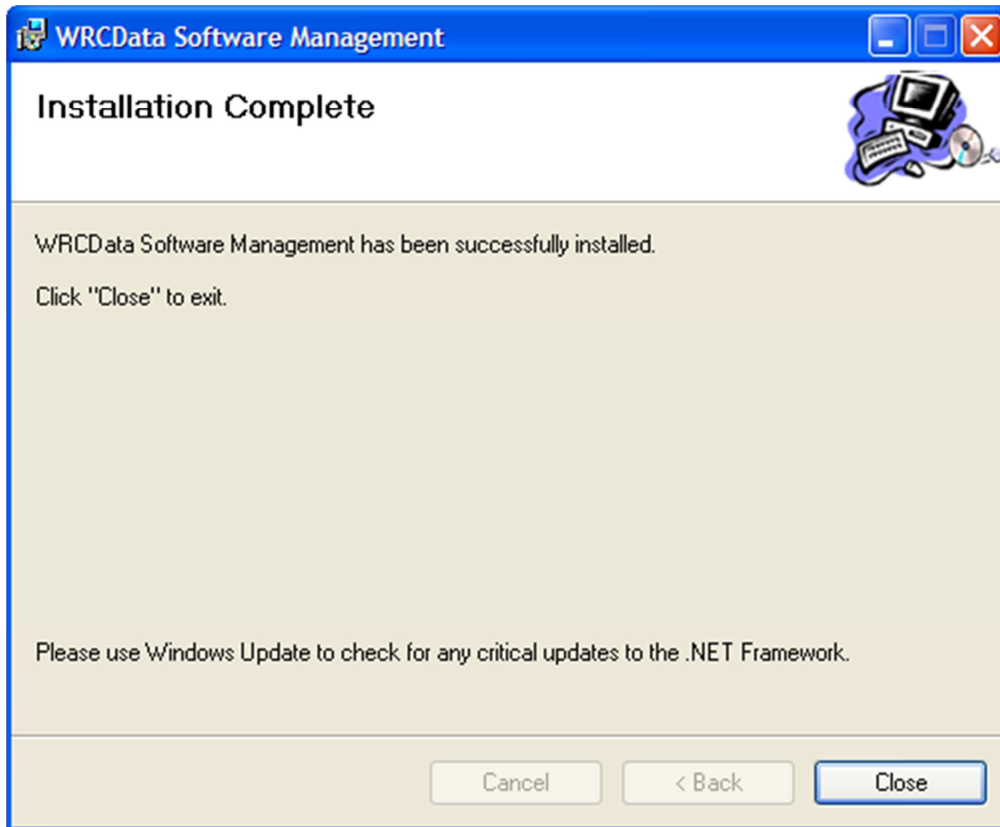
click on "Next" and the installation folder will be requested with this form:



You could confirm the default folder or change it to a different one clicking on the "Browse..." button. Once finished click on "Next" to continue. A confirmation window will appear, click "Next" to continue the installation



At the end of the process the following window will appear, click on "Close" to terminate the installation procedure. Now the WRCDData Software Management is installed.



"WRCDATA SOFTWARE MANAGEMENT" USER GUIDE

Before start the program connect the USB Wire Crackmeter to the PC with an USB cable. Then go to "Start" -> "All programs"->"Sisgeo"->"WRCDATA" and click on "WRCDATA Software Management". If the USB Wire Crackmeter is correctly connected appears the following main window:



Figure 1: WRCDATA Software Management main window

DEVICE

This frame displays the device name, which could be changed clicking on "Change name". The device name is also written in the header of the saved acquisitions file to identify the device.

POSITION

In the center of this section is displayed the present position (in "mm") read by USB. The top line shows the date and time of the device internal clock, while in the bottom there are the number of the saved acquisitions and the current temperature.

LOGGING SETUP

In this section you could view and change all the logging parameters of the USB Wire Crackmeter.

In the "Sampling period" field is possible to setup the hours ("h:"), the minutes ("m:") and the seconds ("s:") between two consecutive acquisitions. If all are set to 0 no acquisition will be done. All changes are sent to the device only when the button "Set" is clicked

In the "Logging start" section is possible to set when the USB Wire Crackmeter will start to save the acquisitions. If the "Immediately" option is selected the acquisitions start as soon as the device is disconnected from the PC. Otherwise selecting the "Start time" option is possible to choose the logging start date and time. Also this section changes are sent to the device only when the button "Set" is clicked.



Every acquisition is saved in a circular buffer so if the free space is depleted before a download, the oldest data are overwriting. To avoid this, the last date before overwriting is displayed. This date is valid only if the parameters were sent to the device, or the memory was deleted.

The last logging option is the "Safe Data". Activating it, every acquisition is double saved and checked (by a CRC code). Usually the device records the measure on two memories, when one is full it starts to use the other. In case of a memory failure about half of the recorded data could be lost. Using the safe data option, the device writes every single acquisition in both memories, so in case of a memory failure none of the recorded data will be lost. The price of this reliability is that the number of acquisitions before overwriting is halved.

Once changed the logging parameters these must be sent to the USB Wire Crackmeter clicking on button "Set". A warning window will inform the user that all the saved acquisitions will be deleted and the device clock will be synchronized with the PC.

The “Erase Memory” button deletes only the saved acquisitions, leaving unchanged the logging parameters. This is useful when, once downloaded the saved acquisitions, the user want to continue logging with unchanged setup and need to avoid data overwriting.

DOWNLOAD DATA

Clicking on the “Download data” button, all the device saved acquisition will be written to a comma separated value (.csv) file. The name of the file is selectable in the form that appear just after the button click. It is best practice to erase the device memory after the data download.

SAVED FILE FORMAT

The data is saved as a comma separated value file. In the first line there is the device name, in the second line there are the column titles of the data, and from the third line onward there are the downloaded data. In every line representing an acquisition, the first number is the serial number and is zeroed every time the acquisition process starts, so the first line starts always with one.



If the first number of the first line is not one an overwriting could be occurred.

The second number of the line is the position value expressed in millimeters followed by the temperature recorded when the measure was taken. Then there is the date time of the measure.

```
Device name : SISGEO  
n,value(mm),temp(°C),date(dd/mm/yyyy) time(hh:mm:ss)  
1,16.374,23,18/02/2011 9.31.40  
2,16.374,23,18/02/2011 9.31.50  
3,16.374,23,18/02/2011 9.32.00
```

TECHNICAL SPECIFICATIONS

Displacement sensor	Potentiometer Stroke: 80mm Resolution: 0.003 mm Linearity + hysteresis : <0.1 % F.S.
Temperature sensor	Range of measure: -20° +80°C Resolution 1°C
Data logger	Conversion: A/D: 15 bits Memory: EEPROM Safety data: CRC redundant Storage: 51062 measurements or 18236 measurements with redundant CRC Period of configured acquisition: 10 s to 91hours
Interface	Connection: mini-USB connector Software: form in Microsoft Windows
Power supply	Battery: CR2032 3Volts Life: 4 years (1 saving per hour)
Working temperature	-10°, +60°C or less depending on the battery features
Wire strength	10 N
Protection degree	IP65
Weight	2 N
Case	aluminium
Electromagnetic compatibility	2004/108/CE

ASSISTANCE

Sisgeo S.r.l. is aware of the importance covered by the after-sales assistant service, therefore Sisgeo Technical Support is structured to offer the following services:

REPAIRS AND MAINTENANCES

During the warranty period we assure that the equipment supplied is free from defects in materials for a standard and appropriate use.

Repairs and/or recalibrations should always be carried out at SISGEO factory or by personnel trained and authorized by SISGEO. In case of repair and/or recalibration please send us the device and every accessory in the container provided, in order to prevent damage from shocks during transport.

This procedure involves the filling out of the form on our website "www.sisgeo.com" to the link "assistance - repairs"; once inserted the request, a confirmation with the related authorization code will be sent to the e-mail address indicated.

Note: the material has to be packed properly and sent in door to door basis (freight to client charge) to:

SISGEO S.r.l.

Via F. Serpero, 4/F1 - 20060 MASATE (MI)

Attn. to Technical Assistance Office

Tel. +39-02-95764130 - Fax: +39-02-95762011 - e-mail: assistance@sisgeo.com

PHONE ASSISTANCE

Telephone support for installation, configuration of equipment, measurement systems and Software.

TECHNICAL ASSISTANCE ON SITE FOR THE SUPPLIED INSTRUMENTATIONS

Technical support for the installation of monitoring systems with its commissioning and start-up, through the add of specialized technician's teams.

TRAINING

Possibility of training at our Factory or at site related to the installation procedures, the system configuration and the use of measurement systems.